

California Environmental Protection Agency



California Actions to Reduce Short-Lived Climate Pollutants

James Goldstene
Executive Officer

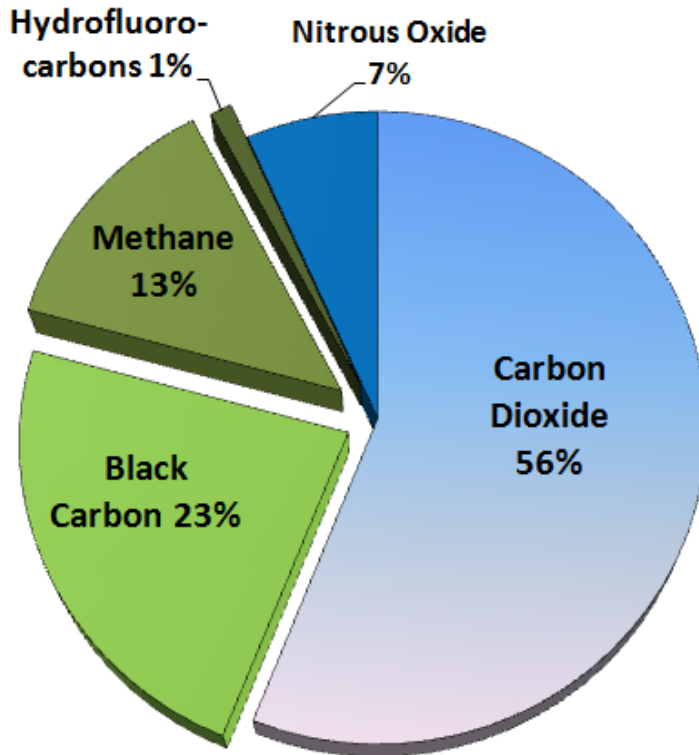
May 24, 2012

Climate Pollutants

- Long-lived
 - Carbon dioxide: 100 years
 - Nitrous oxide: 114 years
 - Controls essential to limit global warming
- Short-lived
 - Black carbon: 1 to 2 weeks
 - Methane: 8 to 12 years
 - Hydrofluorocarbons: 1 to 15 years

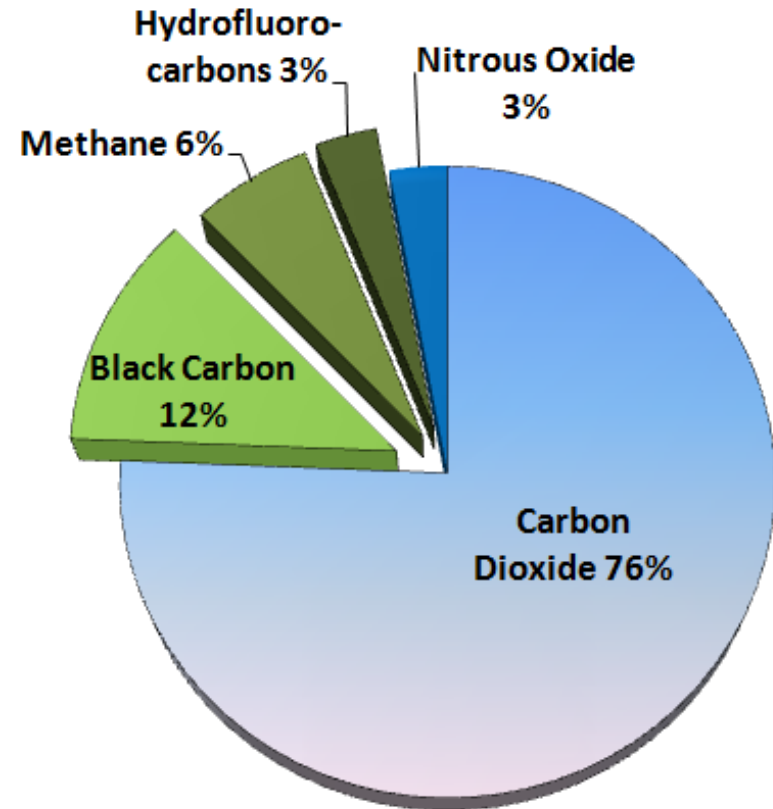
Climate Pollutant Emissions (Current)

Short-lived Climate Pollutants



Global

Long-lived Climate Pollutants

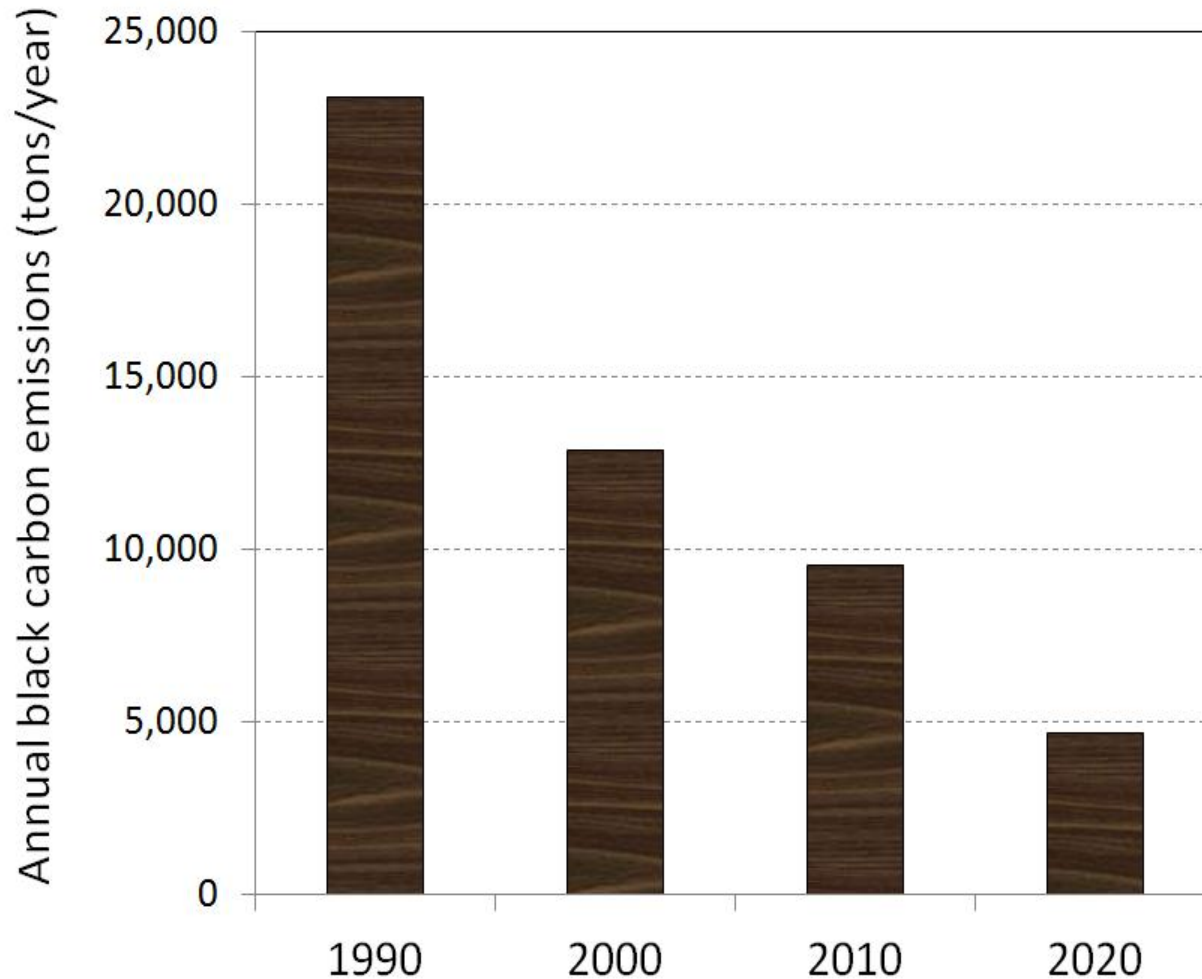


California

California Actions

- Black Carbon
 - Diesel engine controls, Advanced Clean Cars, burning restrictions
- Hydrofluorocarbons
 - Refrigerant Management Program, Advanced Clean Cars, other regulations
- Methane
 - Landfill controls, oil and gas regulations, dairy digester offset protocol

Black Carbon Reductions from California Transportation



80% reduction
in black carbon

California Burning Restrictions

- Agricultural burning
 - Sacramento Valley reduced 90% since 1990
 - San Joaquin Valley reduced 80% since 2002
- Residential burning
 - Mandatory programs in most urban areas

California Hydrofluorocarbon Reductions

- Replacements for ozone depleting substances
 - Hydrofluorocarbons double from 2010 to 2020
- ARB regulations
 - Reduce leaks and incentivize alternatives
- U.S. EPA voluntary recycling program
 - Major California utilities participate

California Methane Reductions

- Landfill emissions generally well controlled
- Livestock emissions largest methane source
 - Dairy digester offset protocol adopted in 2011
- ARB considering regulation in 2013 for methane from oil and gas production

Methane Increases Global Background Ozone

- Global background ozone increasing
- Methane contributes to global background ozone
- As air quality standards tighten, background ozone more important



Today's Speakers

Speaker	Title and Organization	Subject Area
Dr. Mark Jacobson	Professor, Civil and Environmental Engineering, Stanford	Global black carbon and methane overview
Dr. V. Ramanathan	Professor, Scripps Institute of Oceanography, UC San Diego	California-specific black carbon and organic carbon studies
Dr. Marc Fischer	Staff Scientist, Lawrence Berkeley National Laboratory	Methane contribution to global ozone and methane sources in California

Today's Speakers

Speaker	Title and Organization	Subject Area
Dr. Erika Sasser	Senior Policy Advisor, U.S. Environmental Protection Agency	U.S. EPA activities and the International Climate and Clean Air Coalition
Mr. Durwood Zaelke	President, Institute for Governance and Sustainable Development	Reducing hydrofluorocarbons through the Montreal Protocol
Dr. Alan Lloyd	President, International Council on Clean Transportation	Policy perspective